



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,647	10/31/2003	Muneki Hamashima	032082	8467

38834 7590 09/16/2005

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
1250 CONNECTICUT AVENUE, NW  
SUITE 700  
WASHINGTON, DC 20036

EXAMINER

TRAN, THUY V

ART UNIT PAPER NUMBER

2821

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/697,647

Applicant(s)

HAMASHIMA ET AL.

Examiner

Thuy V. Tran

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment submitted 06/24/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-9 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,10 and 11 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This is a response to the Applicants' amendment submitted on June 24<sup>th</sup>, 2005. In virtue of this amendment, claim 12 was previously canceled; and thus, claims 1-11 are now presented in the instant application.

Upon reconsideration, the indicated allowability of claims 1-4 and 10-11 is withdrawn in view of prior art of record to Yamazaki et al. (U.S. Patent No. 6,038,018) and to Nakasuji (U.S. Patent No. 5,892,224). Rejections based on the newly cited reference(s) follow.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (U.S. Patent No. 6,038,018).

With respect to claim 1, Yamazaki et al. discloses, in Fig. 9, an electron beam apparatus comprising (1) an electron gun (which includes a cathode [1]; see col. 6, lines 12-13) for directing a plurality of primary electron beams [13] onto a sample [11], (2) objective lens [14] for forming an electric field to accelerate a plurality of secondary electron beams [32] emitted from the sample [11], (3) a separator [27] for separating said plurality of secondary electron beams from a primary optical system (which includes lens [5, 6]) and for directing said plurality of secondary electron beams into a secondary optical system (which includes [16, 18, 20]) for guiding to a detector [61, 62] outputting a detection signal of the secondary electron beams, and

Art Unit: 2821

(4) a deflector [46] for deflecting said secondary electron beams in said secondary optical system (see col. 10, lines 46-55) to prevent said plurality of secondary electron beams from moving on said detector in response to the scanning of said plurality of primary electron beams (via a magnetic field which is generated by [46]).

With respect to claim 2, Fig. 9 of Yamazaki et al. shows that said plurality of primary electron beams and said plurality of secondary electron beams are arranged in the vicinity of an optical axis.

With respect to claim 10, Yamazaki et al. discloses, in Fig. 9, an electron beam apparatus comprising (1) an electron gun (which includes a cathode [1]; see col. 6, lines 12-13) for directing a plurality of primary electron beams [13] onto a sample [11], (2) an objective lens [14] for forming an electric field to accelerate a plurality of secondary electron beams [32] emitted from said sample [11], (3) a director [46] for directing said plurality of secondary electron beams into a secondary optical system (see col. 10, lines 46-55) for guiding to a detector [61, 62] outputting a detection signal of the secondary electron beams, and (4) a beam separator [27] disposed between the objective lens [14] and a former stage lens [5, 6] in a primary optical system (which includes lens [5, 6]) for separating said secondary electron beams.

With respect to claim 11, Yamazaki et al. discloses, in Fig. 9, an electron beam apparatus for directing a plurality of primary electron beams onto a sample [11] comprising (1) an objective lens [14] for forming an electric field to accelerate a plurality of secondary electron beams [32] emitted from said sample [11], (2) a separator [27] for separating said plurality of secondary electron beams from a primary optical system (which includes lens [5, 6]), and (3) a director [46] for directing said plurality of secondary electron beams into a secondary optical

Art Unit: 2821

system (see col. 10, lines 46-55) for guiding to a detector [61, 62] outputting a detection signal of the secondary electron beams, wherein a secondary electron image is focused around said separator [27] (see col. 8, lines 30-32).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent No. 6,038,018) in view of Nakasuji (U.S. Patent No. 5,892,224).

With respect to claim 4, Yamazaki et al. discloses, in Fig. 9, all of the claimed subject matter, as expressly recited in claim 1, except for a plate having a plurality of apertures corresponding to the plurality of secondary electron beams in front of the detector.

Nakasuji discloses, in Fig. 1, a plate [10], which has a plurality of apertures [101, 102, 103] corresponding to a plurality of secondary electron beams in front of a detector [M11, M21, M31].

It would have been obvious to one of ordinary skills in the art at the time of the invention to modify the apparatus of Yamazaki et al. by additionally configuring in front of the detector a plate having a plurality of apertures corresponding to the plurality of secondary electron beams to attract the charged particles or electrons toward the detector and thus to increase the detection efficiency of the secondary electron beams since the arrangement of such a plate for the stated

Art Unit: 2821

purpose has been well known in the art as evidenced by the teachings of Nakasuji (see Abstract, lines 15-18).

***Allowable Subject Matter***

5. Claims 5-9 are allowed.

6. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Prior art fails to disclose or fairly suggest:

- An electron beam apparatus further comprising a number of memories twice as much as a number of the detectors for storing digital signals generated by A/D converting the detection signals, and change-over switches disposed in front of and at a back of the memories, in combination with the remaining claimed limitations as called for in claim 3; and
- An electron beams apparatus wherein said Wehnelt electrode comprises a first portion adjacent to said cathode electrode and a second portion separated from said first portion, said first portion being finely movable in an x-direction, a y-direction, or a z-direction orthogonal to one another, in combination with the remaining claimed limitations as called for in independent claim 5 (claims 6-9 are allowed since they are dependent on claim 5).

Art Unit: 2821

*Citation of relevant prior art*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Nishimura et al. (U.S. Patent No. 6,518,582) discloses an electron beams apparatus.

Prior art Tolner (U.S. Patent No. 4,798,957) discloses an electron beams apparatus; and


*Inquiry*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuy V. Tran whose telephone number is (571) 272-1828. The examiner can normally be reached on M-F (8:00 AM -5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

09/13/2005

  
**THUY V. TRAN**  
**PRIMARY EXAMINER**